

Original Research Article

OUR EXPERIENCE OF A COMPARATIVE STUDY BETWEEN TUNICA VAGINALIS FLAP AND SCROTAL DARTOS FLAP IN MANAGEMENT OF DISTAL PENILE HYPOSPADIAS IN A TERTIARY CARE CENTRE

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Abstract

Background: Hypospadias is one of the most common congenital anomalies, about 1:250 newborns, of which 50% are distal penile. Both the Tunica Vaginalis and Scrotal Dartos flaps were used as a vascular flap to wrap the neourethra during one-stage procedure to prevent Fistula. Our study was aimed to analyse prospectively the outcome of using a Scrotal dartos flap and the Tunica Vaginalis Flap of Testis to see complications rate after TIPU (Tubularised Incised Plate Urethroplasty) in equal number of Distal Penile hypospadias repair. **Materials and Methods:** Patients having TIPU repair for hypospadias at Tertiary centre hospital between September 2021 and February 2023 were prospectively divided into two groups. Group 1 had TIPU repair followed by scrotal dartos flap, whereas group 2 with Tunica Vaginalis flap from right Testis. At the end of the follow-up period complication rates were compared between the two groups. **Results:** There were 30 patients in each group. The overall complication rate was 15%. The complication rates were 16.67% in group 1 (1 glans dehiscence, 1 scrotal hematoma, 1 urethral stricture and 2 Urethro cutaneous fistula) and 13.33% in group 2 (1 glans dehiscence, 1 scrotal hematoma, and 2 Urethro cutaneous fistula). The differences between complication rates and fistula were statistically insignificant ($p = 1$, which is > 0.05). **Conclusion:** Our prospective study found that the use of Scrotal dartos flaps and Tunica Vaginalis flap in repair of distal penile hypospadias was not statistically significant in overall complications as well as UCF.

INTRODUCTION

Hypospadias is one of the most common urological congenital anomalies. Incidence is about 1 in 250 new-borns. About 50% of which involve distal penile, 30% mid to proximal penile and 20 % penoscrotal to more proximal. There are different methods as well as protective flaps to prevent Urethrocutaneous fistula and other complications in hypospadias repair. Most common complication of hypospadias surgery is urethro cutaneous fistula formation. There are many methods of providing vascularized soft tissue cover to the neourethra. These include de-epithelialized skin, ^{[7],[8]} corpus spongiosum, ^[9] dartos fascia, ^[1,2,3,10] and tunica vaginalis. ^{[4],[5], [6],[11]} Both prepuce or scrotal dartos

fascia and tunica vaginalis provide a protective coverage over the neo-urethra. Scrotal dartos fascia is easy to elevate near the median raphe of scrotum, this is thick with good vascular supply branches from both internal and external iliac arteries. The tunica vaginalis flap (TVF) has also a very good blood supply. The aim of our study is to compare the complications of these two vascular flaps.

MATERIALS AND METHODS

Inclusion Criteria

Distal Penile Hypospadias, mild Chodee, good Urethral Plate, no previous operation of Penis or Testis, agreed to follow up for at least 6 weeks after operation, Age between 2-5 years.

Exclusion Criteria

Mid to more Proximal penile Hypospadias, moderate to severe chordee, poor urethral plate, past history of operation of penis or testis, refuse to follow up, age less than 2 years or more than 5 years.

Study Period: September 2021 to February 2023.

Sample Size: Total 60 cases in two divided groups, 30 in each group.

Study Place: Institute of Post Graduate Medical Education and Research (IPGME & R) SSKM Hospital, Kolkata, West Bengal, India.

In our Prospective study from September 2021 to February 2023, we used the method of TIP procedure in distal Penile Hypospadias. In the tubularised incised plate (TIP) procedure, followed by flap interposition between the skin and neourethra to decrease the postoperative fistula rate. Total 60 cases of distal Penile hypospadias with mild Chordee & good urethral plates were taken in two groups. All were managed with TIP urethroplasty, followed by in group-1, were used scrotal dartos Flap & in another Group-2 were taken tunica vaginalis flap from right testis as a tissue coverage over neourethra. The outcome &complications of two procedures were analysed and compared. This study aimed to find out any difference in complications in the one-stage TIP hypospadias surgery utilizing scrotal dartos flap (SDF) and tunica vaginalis flap (TVF) from right testis as a tissue coverage of neourethra.

In both the Groups suture materials (6-0 Polydioxanone), type of Hypospadias (Distal Penile, Good Urethral plate, Good Penile Size, Mild Chordee), Nelaton's catheter size were same (size 6F). After primary operation dressings were changed on 5th post operative day and catheter were removed on 11th post operative day. Minimum Follow up period was 6 weeks post operatively.



Figure 1: Scrotal Dartos Flap after TIPU



Figure 2: Tunica Vaginalis Flap after TIPU

RESULTS

We used scrotal dartos flap and tunica vaginalis flap, as soft tissue coverage in 30 in each group of patients, respectively, total 60 patients were taken.

The overall complication rate was 15% (9 out of 60 patients). The complication rates were 16.67% (5 out of 30 patients) in group 1 (1 glans dehiscence, 1 scrotal hematoma, 1 urethral stricture and 2 Urethro cutaneous fistula) and 13.33% (4 out of 30) in group 2 (1 glans dehiscence, 1 scrotal hematoma, and 2 Urethro cutaneous fistula). The differences between complication rates and fistula were statistically insignificant ($p=1, > 0.05$ in both the groups respectively).

The total success rate was 51 of 60 patients (85%), while 4 (6.67%) patients developed a urethrocutaneous fistula, 2 in each in each group, showed statistical insignificant. The success rate was 86.67% vs. 83.33% in tunica vaginalis and scrotal dartos flap groups, respectively, with no statistical significance between groups ($p > 0.05$).

Fisher's Exact test was performed for total complications (5 of 30 in Group-1 & 4 of 30 in Group-2) of two groups one tailed p value was 0.764 and two tailed p value was 1, not statistically significant ($p > 0.05$).

Again, Fisher exact test for UCF of both groups were same, 2 each of 30 patients statistical p value is 1, which is also statistically insignificant (as not < 0.05).

DISCUSSION

From our study it has been seen the occurrence UCF in both the cases tunica vaginalis or scrotal dartos flap over neo-urethra are same, also the complication rates between these two procedures are statistically not significant.

There are many studies where scrotal dartos flaps were used, like in urethral stricture,^[12] recto-urethral fistula, UCF but there were not much comparative studies between tunica vaginalis and scrotal dartos flap.

From our study it has been established that scrotal dartos flap is almost equal substitute of TV to prevent UCF, without altering the testicular anatomy or injury of testis, also the procedure to elevate scrotal dartos flap is simpler than elevation of TV flap.

CONCLUSION

Occurrence of complication among children undergoing two different surgical interventions (SDF & TV coverage over TIPU repair) did not differ significantly and did not show any statistically significant difference in relation to associated complications. Scrotal dartos flap may be used as an alternative to TV without much complications specially if we consider UCF.

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